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Legislation Against Plant Pests.

THE brown-tail moth is not a rare insect, and it has been known to entomologists for many years as Liparis (or Porthesia) chrysorrhœa. It has never been known in America, however, until the spring of the present year, when it was detected in Somerville, Massachusetts, and since it is almost as omnivorous and destructive as the gypsy-moth, to which it is closely akin, the discovery of the new immigrant caused something of a panic. The Governor of the state wrote a special message of warning, and about a month ago a law was approved which aims to compel local authorities to take active measures for its suppression. The law provides that whenever this pest shall be discovered in a city or town of Massachusetts the local government shall take immediate steps to destroy it and prevent its spread. If they are in doubt as to the identity of the insect they shall notify the Board of Agriculture, which Board thereupon must inspect the region and supply printed directions setting forth the most approved methods for the confinement and extinction of the insect. Owners and managers of infested premises, as well as mayors and aldermen and selectmen of infested towns and cities, who neglect or refuse to comply with the requirements of the act are subject to fine or imprisonment. If this moth is still confined to a small section of the state the effort to suppress it may not be utterly hopeless. But it may have been half a dozen years ago when it was imported, and further examination may show that it has been widely distributed, so that we ought not to be too sanguine about its utter extermination.

But, whatever the merits of this particular law against this one pest, it is certainly worth while to discuss the general principles upon which legislation against insects and fungi injurious to vegetation ought to be based. We legislate against contagious diseases of man by quarantine, by enforced vaccination and by other sanitary regulations. We have laws for stamping out infection among domestic animals. Almost every state in the Union makes it a misdemeanor for a landholder to allow noxious weeds, like the Canada Thistle, for example, to go to seed on his premises. The principle which underlies all these laws is the same as that which holds the owner of a Cranberry-bog in New Jersey responsible for the scald on his plants, and which in a dozen states compels the destruction of Peach-trees affected with the yellows, or Plum-trees with the black-knot. The assumption is that no man has a right to permit his premises to be a breeding-ground for pests which will bring loss upon his neighbors, when by due diligence he can prevent this. If the trouble does not come from his own carelessness it is right that the state should pay him, as it pays for the destruction of diseased cattle.

But if we admit that legislation against plant pests is justified on this ground, our laws may only be effective to a limited extent. If New York enacts and attempts to enforce a law against the San José scale, for example, what is to prevent an invasion of these insects from adjoining states where there is no restriction upon its spread? To meet such a difficulty Federal legislation has been invoked, and this might be effective with state coöperation as it was when Congress authorized the Department of Agriculture to eradicate pleuro-pneumonia by slaughtering cattle and paying for them what it saw fit. Massachusetts three years ago asked the General Government for an appropriation of $100,000 to aid in exterminating the gypsy-moth, but under our system of government such assistance can hardly be hoped for, and unless, therefore, the states all unite in the enactment of similar laws, any attempt of a single state to compel its inhabitants to fight a moth or a fungus is as likely to prove ineffective as was the Papal bull against the comet. Again, state laws against the enemies of plants, however well considered, are liable to failure in execution, because of a sluggish public opinion that refuses to enforce them. Noxious weeds go to seed by every wayside in spite of legislation and governments. Locusts continue to ravage the western states, although their statute books order farmers to plow the land where these insects have laid their eggs. Over and over again juries have failed to convict peach growers when it had been proved that they refused to burn trees affected by the deadly yellows. This is simply because there is not a public sentiment behind the law strong enough to compel its enforcement. The canker-worm and tent-caterpillar have probably done ten times as much injury in eastern Massachusetts as the gypsy-moth, but a public sentiment which is not strong enough to arouse the people to a destruction of these pests would not enforce a law leveled specially against them.

But it does not follow that because the enforcement of a law is not certain, it is therefore unwise to enact it. It is true that habitual disobedience to any law breeds, to a certain extent, contempt for all laws, but it is also true that the expression of the intelligence of a commonwealth on its statute books is of itself an educating force. Laws against forest fires, for instance, help to instruct people who have never given the subject attention as to the enormous amount of property they sweep away. In the mean time nothing should be neglected which helps to disseminate knowledge of plant pests and their ways. It has been estimated that a million and a half of dollars every day would not pay for the losses inflicted upon agriculture throughout the United States from insects and fungous diseases. It matters little whether the exact figure is larger or smaller than this. It is sufficient to know that the tax upon the productive resources of the country from these sources is enormous. If we are not yet prepared to enforce wholesome laws to prevent this loss, we certainly ought to do everything possible toward creating a sentiment which will enforce them. Here are matters which should be subjects of study in the common schools to begin with, as well as in the agricultural colleges and bulletins from our experiment stations and in farmers' institutes. A civilized people cannot afford to go blundering on as we are doing now, when united action would protect us from a great portion of this loss. When we are confronted again by some new enemy like this moth from Europe there ought to be sharp eyed boys and girls in every state who would detect it at once, and their fathers should have machinery

ready for such an emergency, and be able to check the outbreak at its very beginning.

Mr. William Robinson dedicates the fifty-first volume of *The Garden* to the Rev. G. H. Engleheart, who is best known for his work in hybridizing Narcissi. In a note accompanying a good portrait it is stated that Mr. Engleheart has devoted his leisure for the improvement of Narcissi for sixteen years past with even more remarkable success than characterized the work of his kinsman, the Hon. and Rev. Dean Herbert, sixty years ago, for, besides enriching our gardens with new creations, he has studiously traced and verified the almost unrecorded labors of other workers in this field, such as Backhouse, Leeds, Horsfield and others, until the rearing of Narcissi has been brought almost to the precision of an exact science. Mr. Engleheart has remade these seedling forms, so that now, for the first time, we know their pedigree, and in a similar way he has verified the parentage of many wild hybrids and seedlings which have until lately ranked as true species, although Herbert surmised long ago that some of them were of hybrid origin. Many of his hybrids and seedlings have received first-class certificates and many more have received medals and other rewards. The Trumpet Daffodil, Ellen Willmott, is spoken of as the very finest seedling raised, and White Queen, one of the new peerless forms, is almost equal to it. In Red Prince, Beacon, Southern Star and Oriflamme we have intense color added to perfect form and good substance, with cups almost scarlet and crimson. The seedlings of Narcissus poeticus are genuine improvements on that admirable plant, being better in form, size and color, while the rather tender hybrids of N. triandrus seem to be the perfection of daintiness and grace when grown in pots or in the house.

The Landscape-gardener and his Work.

Mr. O. C. SIMONDS, of Chicago, who prefers the title of Landscape-gardener to that of Landscape-engineer or Landscape-architect, published an article in a recent number of *Park and Cemetery* which contains a good statement of certain elementary principles in his art. Some of the more important passages in this paper are here reproduced:

When one considers engineering in connection with landscapes, instead of thinking of any artistic production, one is more apt to think of the scars along mountains sides, of the destruction of beautiful scenery along river banks, of the changing of watercourses into sewers, of railway embankments, canals and dams. The term "architect" brings to mind a man who aims to design artistic structures. His materials are stone, brick, the various metals, wood, glass, paint, etc. If the term landscape-architect had not been used by some of the foremost landscape-gardeners in this country one would imagine it to designate a man who designed summer-houses, pavilions, balustrades, fences, hedges and things with stiff and formal lines. On the other hand, the term landscape-gardener has, first, "landscape," which, as defined by Hamerton, implies a consistent picture, and "gardener," which indicates that the materials used will be those found in a garden. The objections made to this term come primarily from those who regard a garden as a place in which to raise vegetables for the kitchen, but garden, which meant originally an enclosure, has long signified a place that gives pleasure by the arrangement and beauty of its trees, shrubs and flowers. Mrs. Van Rensselaer has happily called the pleasing effects produced by judiciously arranged masses of foliage, flowers, lawns, water and varied land surfaces, Art Out-of-Doors. To become acquainted with the principles and literature of this art one must read what Repton, Loudon, Downing, Kemp, Robinson, Olmsted, Parsons, Mrs. Van Rensselaer and others have written on landscape-gardening. So far as I am aware no one has written a book on landscape-architecture.

What are the attainments of a skillful landscape-gardener? He follows a fine art which appeals to the eye and has to do with what we see as we pass along residence streets, boulevards and parks. His art applies to any outdoor scenery which can be affected by the hand of man. It is of the first importance, therefore, that he should know how to arrange the ground surface, the trees, shrubs and other plants, the ponds and streams, the points of view and the open spaces or vistas, so that the general effect will be pleasing. No matter how great his knowledge of soils, of drainage, of road construction, and of the structure and characteristics of the various species of plants may be, if he fails to make an artistic arrangement he is not a landscape-gardener.

Next in importance to a knowlege of arrangement comes the ability to produce a result which, with a reasonable amount of attention, will continue to improve with added years of growth. This ability will rest in part on an acquaintance with the habits and life-history of the plants used and of the situations to which they are adapted.

The proper location of the points of view will require a study of the relations of buildings, drives and walks to the landscapes. Where the landscape is an important feature the landscape-gardener should work with the architect in the preparation of the preliminary sketches. Unfortunately, architects frequently design residences and other buildings without any regard to the site and the characteristic features which may have attracted the owner. Cases are not unknown where houses have been so designed and placed that the kitchen and servants' rooms shut off the very best views from the family living-rooms.

A landscape-gardener should be skilled in what Mr. Olmsted calls "the anatomical plan." He should not only be able to place drives where they will command good views while not interfering with the landscape, but he should know how to place them so they will be convenient, with easy grades and proper drainage, and how to construct them in a durable manner with a satisfactory wearing surface. He should know how to economize in regard to space and the cost of the work coming under his direction. While he should have no pecuniary interest in any work that is carried on—that is, should have no interest in any nursery or greenhouse or act as agent for any firm—he should usually purchase the material furnished by nurserymen on account of his knowledge of what is required, the prices that should be paid and the standing of the various nursery firms. He will often be able to save an owner several times the amount of his fees by his knowledge of the value of plants. His work should commence with a study of the adaptability of a given piece of ground for the purpose intended, especially when that purpose is the making of a park, a botanic or public garden, a cemetery, home grounds or the location of a public street. The ground in question may have features which would be of great importance in the design to be worked out, such as an important view of a large body of water, a valley or a distant stretch of country, a grove of trees which would require many years to grow, a rocky ledge, a steep bluff or a ravine, or it may lack valuable features which could be secured by the selection of another piece of ground. When the site is finally selected, a thorough study should be made of its characteristic features and of all the surroundings, and after such study the landscape-gardener should have as clear a conception of the effect he wishes to produce, of its appearance when the first planting shall have been done, when one, two, three, ten years have elapsed, as a painter has when he begins work on a canvas. Not only that, but he should have in his mind the various effects of spring, summer, autumn and winter.

Having made his design, and perhaps sketched it on paper ("perhaps," because a sketch is not always necessary, and there are cases in which the best result will be produced by working directly on the ground), he proceeds to execute it just as his brother artist proceeds to paint a picture, but instead of putting a background on canvas he shapes the actual ground, mixing with it compounds of nitrogen, potash, phosphorus, etc., which, dissolved in the rain, by the aid of the warmth and light of the sun, will afterward produce the desired colors. The landscape-gardener, however, does not select his colors directly. If he wishes a dark green carried up from a given place on the ground he chooses a Maple, or if the green is to continue through the winter he chooses a Pine as his servant to gather the materials already found or placed in the ground. If he wishes a red in winter he chooses a Dogwood, which will put this color in its bark, or if he wishes a red in summer he may choose a Rose. By choosing the right number and kind of such helpers a great mass of color may be carried high into the air, or spread out on the ground like a carpet.

Whether the living picture, as a whole, will be satisfactory or not will, however, depend upon the choice of material made by the landscape gardener, provided his supervision is continued for a long enough time. The continued supervision is required because it takes time—in some cases years—

for the various trees, shrubs, vines and herbaceous plants to do their part in making the picture. More are needed at the commencement than are needed later. They are not large or strong when first assigned their places. Some may become sick or they may crowd their neighbors. The owner of a place or his man in charge, or the superintendent of a park, may have failed to grasp the features of a design, and so have made changes detrimental to the final result. Few members of the profession, to say nothing of the clients, have appreciated the importance of an oversight extending through a series of years. The architect's work is finished with the completion of a building; the painter's when he puts his last touches on a canvas, but what the landscape-gardener must have in mind is not a single picture, but a series of pictures having more or less resemblance to each other, changing more rapidly with the first than with the later growth, and needing from time to time the inspection and criticism of a trained eye. This inspection may be made by visiting a place once a year, once a month, or even more frequently, as may be agreed on with the client, but it should not be omitted.

Perhaps no work of an artistic character requires a broader knowledge than that of landscape-gardening. Besides the creative faculty of a designer, it calls for some acquaintance with engineering, architecture, horticulture, botany, the adaptability of different plants to various climates and soils, their appearance, their rate of growth, their length of life and the social habits of the people to whom they will give pleasure. Of course, his knowledge of engineering or architecture will not be as extensive as that of men engaged in those professions, but it will be such as will enable him to bring the bridges, buildings and other constructive works into harmonious relations with the landscape.

The Madroña at Ukiah.

EVERYWHERE in California Arbutus Menziezii is known by its musical Spanish name of Madroña, pronounced with a soft "d." While found from Puget Sound to Mexico, it is in the region between San Francisco Bay and Oregon that the Madroña is at its best. Elsewhere it is oftener a shrub, here frequently a tree of considerable dimensions, specimens two or three feet in diameter being common, and one noble tree near San Rafael is said to be twenty-three feet in circumference at base.

In Ukiah Valley it is very common, extending from the dry uplands to the mountain tops, and almost exclusively covering some considerable areas on the mountain slopes. The town of Ukiah is built on a sloping upland, which was originally covered with timber, a mixed growth of Douglas Spruce, White Oak, Black Oak, Black Live Oak (Quercus agrifolia), Manzanita and Madroña. The founders of the town, with rather unusual good taste for pioneers, spared the native trees, and they have thrived wonderfully under the changed conditions. Trees in variety have been planted, and sidewalk trees are the rule rather than the exception. Viewed from any quarter now, the town seems hidden in a forest.

The Madroña formed a large part of the original undergrowth. A few were large trees, but there were a multitude of seedlings and many clumps of sprouts from old stubs. All have grown well, and are now beautiful and symmetrical trees, the most attractive feature of our town. Many blocks are covered with fine groves of them.

As an ornamental tree the Madroña has many virtues and a few vices. With its large elliptical leaves, suggestive of the Rhododendron, its sweet flowers in May and its glory of red berries in midwinter, it is always beautiful. No less charming are the smooth limbs left clean and shining in their rich brown coat, as the old bark sheds each summer. The leaves are shed in May and June, after the new leaves have formed. The contrast between the bright green of the new and the yellow of the old is fine, but the litter of leaf and bark is objectionable, and perhaps a little more so because the leaves do not fall as part of the general decay at the close of the year with those of deciduous trees, but at a season when all vegetation is in the full tide of life.

Ukiah, Calif. *Carl Purdy.*

Foreign Correspondence.

London Letter.

VICTORIA REGIA.—A considerable range of variation has already been revealed under cultivation by this, the queen of Water-lilies, and two forms of it at least have been named—Randii and Dixon's variety. The latter is remarkable for the red tints of its flowers and for the size and depth of the rim of the leaves. A well-marked variety, new to cultivation so far as this country is concerned, is now flowering for the first time at Kew. It was raised from seeds received in January from Mr. Tricker, of the nurseries of Mr. H. A. Dreer, Philadelphia. Among its peculiarities are, first, the early cupping of the leaves, the turned-up rim being shown by quite small plants, while when full grown the leaves are large, of a lustrous bright green color, and the rim is from six to eight inches deep. The flowers produced up to the present are not quite equal in size to those of the ordinary form, but they open several hours earlier in the day and they change color earlier. Usually the sepals of Victoria are spinous to the tips, but in this variety they are quite glabrous. Mr. Tricker states that with him the plant grows very freely and that during the summer it is not unusual to have fifteen or twenty good leaves on a single plant, and frequently two flowers open together, a first and a second day flower. He has also had plants that flowered when in comparatively small pots and a perfect flower produced on a plant in a twelve-inch seed-pan. The plant at Kew is growing along with one of the ordinary variety and one of Dixon's variety, and it is by far the strongest and most attractive in leaf characters, while it has already developed three flowers before the others have shown signs of any. It is noteworthy that these varieties of Victoria regia come true from seeds, so that their characters are fixed. Probably Mr. Tricker can furnish particulars of the origin of his variety.

CAMPTOSEMA PINNATUM.—This handsome stove shrub or small tree has an erect woody stem, pinnate leaves over a foot long, each leaf consisting of three pairs and one terminal ovate leaflet, ten inches by three, of a bright green color. In habit and leaf characters the plant is not unlike a young American Ash. The flowers are borne in short axillary racemes resembling those of Erythrina caffra, but shorter, each raceme consisting of about a dozen flowers, which are two inches long, the calyx green, mottled with purple, and the corolla rich rose, changing to rosy mauve. There is a plant of it a yard high now flowering for the first time in the Palm-house at Kew; it was raised from seeds received from Brazil nine years ago under the name of Camptosema erythrinoides. The genus is composed of ten species, mostly climbers, all natives of Brazil. C. rubicundum, a climbing species with red flowers, was in cultivation here sixty years ago, when it was figured in *The Botanical Magazine*, t. 4608, and also in *Paxton's Magazine*, where it is called a Kennedya. It is not known to be in cultivation now.

EULOPHIELLA PEETERSIANA.—A plant of this extraordinary Orchid has been established in Sir Trevor Lawrence's collection, where I lately saw it growing vigorously. It has made three rhizomes about nine inches long, on each of which are about a dozen leaves, each from three to four feet long and three or four inches wide, of firm, almost leathery texture and plicate. It is a most distinct-looking Orchid, undoubtedly a Eulophiella, a photograph of the flower showing all the characters of that genus as known in E. Elizabethæ. The flowering of this plant is awaited with curiosity. I am told that Monsieur Peeters, the Brussels Orchid dealer, to whom we owe the introduction of this Orchid from Madagascar, has also succeeded in establishing plants of it.

DENDROBIUM CŒLESTE.—A blue Dendrobium would be a decided acquisition, and if the species described under this name in *The Gardeners' Chronicle* for this week is all that it is said to be, its introduction will be awaited with considerable interest. It has been discovered in the Philippines

at an elevation of about 8,000 feet, where Oaks, Rhododendrons, Myrtles, etc., are its companions. In habit it is said to resemble D. Victoria Reginæ, another new discovery of this year and also a native of the Philippines, described as having stems which produce "great numbers of richly dark blue and white blossoms borne in trusses and lasting in bloom for several weeks. The flowers are over an inch in diameter, the sepals and petals white at the base, with a great blue blotch at the edges, the lip ovate-oblong and of the same color." In D. cœleste "the fleshy flowers are entirely dark blue, with the exception of the ovary and spur, which are purple. The sepals and petals are ovate and almost equal in size, the lip obovate and blunt, the column blue." These two species are described by Mr. A. Loher, Manila.

Incarvillea Delavayi.—The most vigorous example I have seen of this fine Bignoniad is in the garden of Sir Trevor Lawrence, at Burford Bridge, where it is grown out-of-doors in a sunny border all summer and lifted and kept in a frame in winter. Under this treatment it develops leaves two feet long and spikes four feet high, clothed with flowers proportionately large and rich in color. According to a note in *The Garden* this plant is hardy enough to thrive if left permanently out-of-doors in most parts of England, for in Dalbeattie, near Dumfries, seeds sown two years ago have yielded plants which were in great beauty in June this year after having stood the last two winters in a climate not very suitable for tender things. It will be remembered that this plant was introduced from China by the missionary after whom it is named and that it first flowered in Paris in 1893. It is now easily obtained from the nurserymen.

Tea Roses and Violas.—In a notice of Tea Roses grown by Mr. Robinson at Gravetye last year, I mentioned the excellent effects produced by planting bedding Violas (tufted Pansies) as a carpet or mulch to the rose beds. A series of beds of Teas has been planted this year bordering a curved walk against an old Yew hedge, and among these a selection of bedding Violas has been used. The effect now is most pleasing. Each bed is filled with one kind of Rose and one of Viola. There are no harsh or brilliant colors among the latter, their blues, yellows, creams, whites and piebalds harmonizing well with the whites, creams and pinks of the Tea Roses. The latter are, of course, on their own roots. It is a mistake to plant Tea Roses that have been grafted or budded. Bedding Violas are again the subject of a special trial at Chiswick, where there is now a fine collection of varieties.

London. *W. Watson.*

New or Little-known Plants.

Rhamnus occidentalis.

THIS plant was first noticed by Mr. Thomas Howell, near Waldo, in south-western Oregon, and described by him as a shrub from two to ten feet in height, with coriaceous yellow-green elliptical leaves, from acute to obtuse or retuse at the apex, flowers in subumbellate fascicles and black obscurely lobed fruit.* Last September I found it in the same region, but at higher elevations on the north slope of the Siskiyou Mountains, where in dry gravelly soil it forms broad compact round-topped bushes about two feet high and sometimes five or six feet in diameter, being in habit quite unlike any of the forms of Rhamnus Purshiana, to which it has sometimes been referred,† and from which it also differs strikingly in the yellow-orange color of the under surface of the leaves, similar to that of the leaves of Rhamnus crocea of southern California, a fact which has already been pointed out by Professor Greene.‡

Our figure on page 285 of this issue, made by Mr. Faxon from specimens which I gathered on the Siskiyou Mountains, will perhaps call attention to this interesting plant, which on further investigation will probably be found to be specifically distinct from the very variable Rhamnus of the Frangula section of Pacific North America. The leaves are described by Mr. Howell as persistent; probably, however, they fall during the winter or in early spring with the appearance of the new growth. *C. S. S.*

* Howell, *Pacific Coast Plants, Collection of 1887*, No. 1105; *Fl. North-western America*, 113.

† Trelease, *Gray Syn. Fl. N. Am.*, i., pt. i., 408.

‡ *Pittonia*, ii., 15.

An Undescribed Antennaria from New England.

IN the spring of 1891 Mr. J. C. Parlin collected at North Berwick, Maine, an Antennaria which then appeared very different from the common form, but which has not been critically studied until the present season. Early in May of this year, while botanizing with Mr. Parlin upon the intervales of Great Works River, in North Berwick, our attention was attracted by the stout, viscid, young shoots of a plant which proved to be the same as that collected six years ago. The plant was abundant in the woods or on recently cleared knolls in the intervale, and, though still very young, it reminded one, upon a superficial glance, of a Gnaphalium rather than an Antennaria. At that time, early in May, the common Ladies' Tobacco, or Pussy's Toes, of the fields and meadows (A. neglecta, Greene, *Pittonia*, iii., 173) was in full flower, and even passing to fruit.

Later in the spring, in late May and early June, the large viscid plant has been found in great abundance by Mr. Parlin in southern Maine, and by Dr. B. L. Robinson, Mr. E. L. Rand and others in southern New Hampshire and eastern Massachusetts. The plant flowers at the same time as Antennaria plantaginifolia (see Professor Greene's paper); and it is interesting that, as in case of two of Professor Greene's recent north-western species, the staminate plant is unknown. Wherever found the pistillate plants have been abundant, but thus far only that form has been detected. Often, however, this species is found growing with staminate or pistillate plants of A. plantaginifolia.

Aside from the glandular stem and large cauline leaves and the purplish involucre, perhaps the most striking character is in the bright green smooth and shining upper surface of the strongly discolorous basal leaves. These characters separate the plant very clearly from the other Antennarias, and I propose it as a species, which I dedicate to its discoverer.*

Gray Herbarium, Cambridge, Mass. *Merritt L. Fernald.*

Cultural Department.

Herbaceous Perennial Plants in Flower.

PROBABLY the finest show made by any herbaceous perennial in the garden now is the glowing mass of flowers borne by a clump of Alströmeria aurantiaca. While this plant has flowered here annually for eight years past, at no time has it shown such luxuriance of growth and bloom as it has this season. Although it requires a slight protection in winter in this vicinity, it flowers perfectly without any protection after a mild winter like the last one. Success with this plant depends largely on the situation and the condition of the soil in which it is planted. A slightly elevated position with a warm aspect in a soil of such texture or so drained that it will

* Antennaria Parlinii, n. sp. Rather tall, 1½ to 4 dm. high, the stems conspicuously leafy, pubescent with white appressed-silky or even lanate hairs, and bearing elongated purplish glandular hairs, especially toward the base and the inflorescence; stolons rather stout, glandular: old leaves of the basal rosette subcoriaceous, obovate or broadly obovate-spatulate, tapering below to a winged petiole, rounded and generally mucronate at the tip, including the petiolar base 4 to 7 cm. long in well-developed plants, 1⅛ to 3⅕ cm. wide, smooth and bright green (never arachnoid) above, almost shining in the fresh plant, 3-nerved, beneath canescent or glabrate, wrinkled and with prominent veins; lower cauline leaves spreading or ascending, oblong, obtusish, mucronate, glandular on both faces, green above, sordid beneath, 3 or 4 cm. long, the upper reduced; lower leaves of the stolons like the cauline, the terminal ones large, obovate, strikingly discolorous, bright green and smooth above, white and closely pubescent beneath: heads loosely or densely corymbose: the involucre subcampanulate, sometimes fully 1 cm. high, of 3 rows of imbricated bracts; the outer bracts herbaceous, purplish, and somewhat glandular, with short acute or bluntish erose scarious tips; the inner with the narrow scarious tips long-attenuate: styles and corollas purplish: pappus silvery white: akenes 2 mm. long, granular. In woods and on hillsides, generally in rich soil, southern Maine and New Hampshire and eastern Massachusetts. Maine, North Berwick (J. C. Parlin, 1891, J. C. Parlin and M. L. Fernald, 1897); New Hampshire, Jaffrey and Dublin (B. L. Robinson and E. L. Rand, 1897); Massachusetts, Lexington (B. L. Robinson, J. M. Greenman, etc., 1897).

not retain too much moisture in winter, and where the plants can be well covered with dry leaves, is the most suitable one. Another important point in cultivating Alstromeria is that it does not like to be disturbed too often, and therefore when once established it ought to be left alone.

sown will produce any number of young plants, and, in fact, this is the most natural and most satisfactory way of increasing the plants. My experience with the seeds is that they lie dormant one year before they germinate.

As usual, Acanthus latifolius is attracting much attention, as

Fig. 36.—Rhamnus occidentalis.—See page 284.

1. A flowering branch, natural size. 2. A fruiting branch, natural size. 3. Vertical section of a flower, enlarged. 4. A fruit laid open transversely. 5. A nutlet, enlarged.

The stems of this plant grow from three to four feet high, but they require no staking, as they are stout enough to take care of themselves. The umbels are made up of about a dozen large flowers, which are orange-red and streaked with red. An abundance of seeds are produced annually, which if it is now in perfect flower. The plants are unusually thrifty, and there are three dozen well-developed flower-spikes now and many more which have not quite appeared above the foliage. This plant is not seen to the best advantage when grown in the mixed border. The best position is on the lawn

in an open space, where it should remain undisturbed for a number of years, and then it will compel admiration for its stately habit and foliage. This Acanthus is protected here in winter with a covering of leaves, but I have little doubt that well-established plants would thrive without any covering.

Spiræa palmata is an old Chinese plant, but one never tires of its large palmate leaves and its large clusters of rosy crimson flowers. It is slightly more than a yard high and its blossoms are carried high above the dark green foliage, which gives them a pleasing effect. S. palmata is probably the best herbaceous species belonging to this useful genus, and when well grown is always desirable. It does best here in a deep rich soil and slightly shaded position. It is easily increased by division either in the spring or fall.

Harvard Botanic Garden, Cambridge, Mass. *Robert Cameron.*

Notes on Pelargoniums.

PELARGONIUMS as known in gardens are hybrids of P. grandiflorum, and commonly called Lady Washington Geraniums. When properly grown they are among the brightest decorative plants we have. They are in no way delicate in constitution, and, like their near relative, the common Geranium, are sure to bloom if sufficient light and sunshine are allowed them. Pelargoniums flower during the spring months, and in order to obtain fine, shapely specimens there must be a season of preparation. Following the conditions imposed by nature, it is well to rest them until midwinter, though not to the extent required by bulbous plants; they should be watered occasionally to keep the wood firm and the roots healthy.

To begin a new collection or replace old plants, cuttings should be put in now. They take longer to root than Geraniums, and must be kept growing from the time they are rooted. Where large numbers are required, as in commercial establishments, a good plan is to plant out the old plants. They will furnish an abundance of cuttings, and the cutting-bench can be kept going until the end of September. Cuttings rooted from now onward make neat plants in six-inch pots, such as are extensively grown for the flower markets of the large cities of Europe. They have had only a limited sale as Easter plants in this country. If, however, large specimens are desired, it is better to take out the flower-buds from the young plants next spring. This strengthens them, but they must be rested to some extent, as are the older plants.

Rested plants must be repotted not later than January, gently started, stopped frequently and tied into shape. The best specimens are those trained so that the foliage and flowers almost hide the pots from view. With a light airy position and a night temperature of fifty, the plants will make good sturdy growth. Pelargoniums have a special season of bloom, unlike Geraniums, which bloom when allowed, and flower on separate growth. They cannot be retarded by taking out the flowering-stems, and when they are ready they must be allowed to bloom.

A list of some of the newest and best includes Jubilee, light pink, very attractive; Kingston Beauty, white, dark standard; Ophelia, reddish purple; Multiflora, pink, dark standard; Nellie Hayes, white, dark standard; Duke of Fyfe, pink and white; Lady Duff, scarlet and pink; May Queen, deep red; Mrs. Wright, white, scarlet tinted; Duke of York, scarlet, pink and white.

Garden Geraniums, hybrids of Pelargonium zonale, are more widely known. When one gardener wishes to show his contempt for another's skill, he says "he can't even grow a Geranium," which is the same as saying there is no plant so easy to grow. Geraniums are divided into bedding and fancy varieties, or such as make better pot-plants. Those of the latter class are again divided into the large round-flowered single forms, the Bicolor or Corona type, and the semidouble Bruants. Of bedding varieties it is enough to say we box off cuttings in the autumn after the first frost. They are almost sure to root if not overwatered. They may be put away on shelves, and require little attention until spring.

To grow fancy varieties into specimens requires more attention. We take cuttings at this time and keep them growing. Some few may be allowed to bloom during the winter, but those required for specimen plants may be treated as recommended for Pelargoniums. They make first-rate plants toward spring, and florists grow them in large numbers for spring sales. All that is needed is to keep the flowers picked off until within a week or two of the time when it is desired to have them bloom. Large specimens are better for being rested a month or six weeks during midwinter in a good light position with a temperature as low as forty-five. As the days lengthen with increased sunshine they may have more water, and manure occasionally. The new growth will be covered with bloom in from four to five weeks.

Single round-flowered Geraniums worthy of recommendation are Florence Farmer, white-veined and tinted with salmon; Eleanor, clear, bright orange; Olivia, bright rose; Snowdrop, pure white; Gertrude Pearson, clear pink; Dr. S. Grey, crimson; Corona, or aureole type; Madame G. Henry, shades of rose-white and red; Madame Bruant, white, veined with carmine; Renommée Lyonaise, scarlet, white centre; Le Rhone, rosy scarlet, white centre and white blotches on upper petals; Bruants, semidouble; Madame Janlin, deep rose; Eulalie, light salmon, an attractive flower; Gloire de France, white, pink-tinted, and Beauté Poitevine, salmon-pink.

Wellesley, Mass. *T. D. Hatfield.*

Greenhouse Notes.

MOST people are fond of Mignonette, especially when used with other cut flowers, and it is never at its best until cool weather or midwinter under glass. To have it early, or about Christmas, the seed should be sown at the end of this month on a bench in a house that will be cool in winter. A minimum temperature of forty-five degrees is well suited to produce good spikes, and this is about the average temperature of a Violet-house in cold weather. It is almost impossible to make the soil too rich for Mignonette, and it also does best in a deep bench with at least a foot of soil, or, better still, in what is known as a solid bed where the roots may be cool and moist. Of course, a good strain of seeds must be planted. The Machet is most generally used, but any of the selected strains are equally suitable. Care must be taken to give plenty of room when sowing. We usually sow in rows eighteen inches apart, and thin out the plants when they are of good size to six inches in the row. A close watch must be kept when the plants are young for the small green caterpillars of the white butterfly; they will speedily ruin all the seedlings if neglected for a few days, but Hellebore will help, and with hand-picking they may be kept down.

Antirrhinums are becoming popular as winter-flowering plants, and the keeping qualities of the flowers after they are cut are surprising. They make a good succession to Chrysanthemums in the benches, and will flower in early spring. To have plants suitable to set out in benches in November cuttings may be taken now from some plants whose flowers are of special colors, or seeds of the mixed varieties may be sown now to furnish plants that will not have flowered previous to planting indoors. Antirrhinums may also be grown in pots to flower, but, like most free-rooting plants, should have a bench if possible.

The newer kinds of single Violets promise to be most useful flowers. Princess de Galles is a superb flower of good round outline, very fragrant and vigorous in growth. There seems to be no tendency to disease in these new strains, at least I have detected none thus far. Luxonne is another new one that should be tried; it is not so fragrant as some others, but is the largest of all, and owing to the narrow petals it measures almost as much across as some Pansies. The color of both these Violets is a good deep blue, and there seems to be no limit to their length of stem. If grown for no other purpose they ought to be tried for furnishing leaves to go with the double varieties, as these are injured greatly from continual plucking of the foliage in winter-time.

Poinsettias are now starting freely, and as these plants repay good treatment it is well to repot them as soon as growth begins. They should be placed outdoors in full sunshine for the hot months, and with the first cold nights of autumn they should be taken indoors into a cool, airy house at first. If they are wanted for Thanksgiving a little more heat will be needed. The double variety is much later in flowering, and will last well into the new year. The soil should be made very rich at potting-time by the addition of bone or some other convenient fertilizer. It is unsafe to rely upon manure-water to bring them on later, as this is sure to result in the loss of much foliage, which spoils the appearance of the plants when in bloom.

To those who have not tried it before, I would advise pinching off the flower-stems of the main crop of Carnation-plants in the field late in the season—say, the middle of August. A few plants should be reserved to flower early and set in cold frames for flowers until the end of November. They will do just as well, or better, than those planted in the greenhouse for the time, and when they are past, those in the house will be coming in with a full crop that will last all winter long, and will make a good succession to Chrysanthemums and help to

fill up the inevitable gap that always seems so hard to get over. I have frequently lifted these from the frames to take the place of Chrysanthemums on benches, and they have done well, too, but this should not be necessary. One should calculate to have no flower-spikes showing on the plants at lifting time, and then the crop will come in as described. Very large plants are by no means best, and four plants should be used to cover a given space rather than three. Unless the soil is heavy, care should be taken in lifting to get all the roots up, even if not a particle of soil adheres to them. It is surprising how well the roots take hold of the soil prepared for them if they are free of old soil and carefully planted.

Freesias should soon be shaken out of the old soil if this has not already been done. They seem to ripen better if taken out and put in a dry airy place in paper bags. They are not liable to start unexpectedly either, as sometimes happens when left to summer in the old soil in an out-of-the-way corner. We also repot Lachenalias at the same time as Freesias, and they are stored in a similar way, as they are liable to begin to root if the least moisture reaches them when at rest. Both Freesias and Lachenalias ought to be sorted as to size at potting time if well-flowered pots are desired, the small ones being set aside and grown on separately to flowering strength.

A good time to put in a crop of Hydrangea cuttings is when the strong shoots that have not flowered this summer have reached their growth. They root freely if put in a cool shady place out-of-doors, and from these plants one may get a fine truss of flowers next spring. If they are planted out for a summer they will make fine stock to grow on for forcing the year after. No plants are more likely to become too large to handle properly than Hydrangeas, and it is often a problem how to store them in fall and start them in spring. But with the rooting of a fresh lot each year useful-sized plants may always be on hand and an abundance of flowers.

If Canterbury Bells, Foxgloves, Hollyhocks and other biennials are wanted for use next year, seeds should be sown now. The plants will not be as large as those from seeds sown in spring, but will be much more useful for this reason, and will winter over better where they have to be stored, as in New England. The first two will make useful plants for early flowering in pots, and it is necessary to grow Hollyhocks each year from seeds now that the disease makes such ravages among them.

South Lancaster, Mass. *E. O. Orpet.*

Ipomœa pandurata.

SOME of the tuberous-rooted Ipomœas have been in bloom in the open border here for some time past. They make a very attractive display, and when compared with other summer-flowering exotic plants, in return for very little attention given them. Among the most interesting of these are two native species—I. pandurata and I. Michauxii. The latter comes from the southern states, and needs a thick covering of leaves or some such material over the crowns to help it withstand severe weather. Even then, if kept out, it is usually late in starting, and the summer is nearly gone before it comes into bloom. By allowing the shoots to get several feet long in the greenhouse before planting out, which they will do even when the tuber is not placed in soil, but merely allowed to lie under the staging, the season of blooming is hastened very much.

Ipomœa pandurata, known commonly as "Man of the Earth," owing to the immense fleshy roots of the full-grown plant, is a native of the eastern states, and is common from Connecticut to Georgia on sandy banks and neglected farmlands. As showing the size of the underground portion of the plant, some years ago I spent two hours with pick and spade in digging up an old plant. The root measured more than three and a half feet long, and at the thickest part ten inches in diameter. This plant has since produced hundreds of its showy flowers every summer, and is yearly covering more space. It is growing in a mixture of sand and vegetable humus, and every autumn it gets a good covering of manure, not as a protection, but to enrich the soil. There are at least two forms of I. pandurata found in a wild state; one has flowers about two and a half inches across, the other has flowers twice this size. The merits of this species must be judged from the way specimens grow in their native wilds. As we usually see them they have very few long straggling stems and comparatively few flowers expanded at one time. When brought under cultivation—that is, when full-grown specimens are transplanted—the plant throws out a great number of stems and flowers from the beginning of June till September. Under cultivation, however, the flowers are no larger than they are in a wild state. The propagation of the plant from cuttings I have found to be by no means easy; in fact, it seems to be quite as difficult to root as the well-known tropical species, I. Horsfalliæ. The roots of medium-sized plants, when cut into pieces about three or four inches long, will occasionally sprout, but this is by no means a certain method, as they have been known to remain in an inactive condition for more than a year. Where old plants are growing wild in a well-drained soil they seed freely, and young plants are quickly raised from them. Seedlings, however, take a long time to make good flowering specimens. Any of the tender tuberous-rooted species, which are found to be difficult to root from cuttings, will be found to take readily when grafted on pieces of the root of I. pandurata. The operation should be performed in late summer, when the shoots are thoroughly ripened.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

Notes on Carnations.

PLANTS out-of-doors are looking extremely well this season. We have not yet had any prolonged drought, as is common in July and August, and young plants are all growing luxuriantly. The first ten days of July were exceptionally hot and dry, but by keeping the ground well stirred the plants did not seem to suffer in the least, and a copious rainfall on the 13th, with continued high temperature, started them into active growth. Success next winter depends largely on the treatment given the plants from now until lifting time in September. If the ground is allowed to bake and weeds to grow, only failure can be expected. Whether watering ought to be resorted to in dry weather is a debatable question. Many successful cultivators condemn it altogether, and personally I am not in favor of it unless it can be done thoroughly. In commercial establishments, where many thousands of plants are grown, watering would be expensive in many cases, and in others impossible, owing to deficient water supplies. On private places, where at most a few hundred plants are housed, artificial watering can be done quite readily if a good length of hose and a standing sprinkler are at hand, by having the sprinkler at work in one place for two or three hours, when a bed will be pretty thoroughly soaked. Many artificial aids to growth are needed in our climate, and I approve of watering when plants show signs of suffering rather than wait for a chance shower. Plants allowed to become dust-dry at the root and to droop helplessly will certainly not give as satisfactory returns as those kept growing steadily. After every watering and rainfall a thorough cultivating of the soil among the plants is necessary. Weeds grow apace at this season, and many of them will need rooting out by hand if they are close to the plants. Once a week we go over the rows and do any stopping required, holding the shoot with one hand and drawing out the top with the other. A mere nipping or clipping off of the tops is of no use whatever.

Summer-blooming Carnation plants are now flowering quite freely. The earliest and best sorts are Daybreak, Mrs. Fisher and some unnamed scarlet seedlings. A scattering of some chemical fertilizer, such as Bowker's Hill and Drill Phosphate, or sheep-manure, or a soaking of liquid manure after a heavy rainfall, is beneficial. Heavy rains dash the soil on the flowers if the plants are not kept well tied up, and we find a light mulching of spent mushroom-manure, or any old manure, helps to keep them clean and the ground moist. There is, as a rule, not much time for disbudding Carnations during the hot summer months, but if this can be done improved flowers and stiffer stems will be had. Our hot, dry summers and severe winters make it impossible to successfully grow the border Carnations which are the glory of English gardens at this season. But by a selection of suitable American kinds any garden may show a constant succesion of bloom from early in July until sharp frost cuts down the plants. The Rose is undoubtedly the queen of flowers while in season, so far as outdoor ones are concerned, but three weeks is about the term of the Rose season, and after that only an occasional bud is to be seen. It is not strange that Carnations are the flowers of the million, for their fragrance, freedom of bloom and lasting qualities all recommend them. Cut sweet peas or roses in an ordinary living-room last only about forty-eight hours, while a vase of Carnations will keep fresh for nearly a week.

Many growers throw out their Carnation plants from the benches before hot weather sets in. We generally keep ours in until September 1st, just allowing time to clean out the old materials and prepare for the winter stock. The benches should have a coat of limewash and be refilled and the new stock planted. Plants thus furnish flowers for nearly twelve

months. Our plants were given a mulching of cow manure in May and a soaking of some liquid stimulant once a week during the summer months, and a thorough hoeing early in the afternoon of every clear day to keep red spider in check. The most persistent bloomers are mainly well-tried varieties, such as Lizzie McGowan, William Scott, Thomas Cartledge, F. Mangold, Eldorado and Alaska. The most unsatisfactory sorts include Meteor, Bridesmaid, Helen Keller, Triumph, Crystal and Nicholson.

Attention should now be given to the compost-heap intended for use in the benches in September. Too often these heaps are a mass of rank weeds which take up a large part of the food intended for the Carnations. We always use some bone-dust in compost, and if this has not yet been added it should be mixed in now. Weeds should be kept out of the heap by all means, and a few minutes' work once a fortnight will suffice to accomplish this.

Taunton, Mass. *W. N. Craig.*

For Winter Flowers.—Among border plants useful for furnishing cut flowers in winter may be mentioned Snapdragons. We have selected varieties propagated from cuttings, and some strains come tolerably true from seed. In a white-flowered collection was one with the delightful odor of orange blossoms. Coreopsis Drummondii is another useful plant and furnishes enormous quantities of flowers. The seeds should be sown now to secure good plants for autumn-blooming. Anthemis tinctoria will replace yellow Marguerites, and this also makes neat little pot plants which flower nicely in five-inch pots.

Wellesley, Mass. *T. D. H.*

Correspondence.

The Sycamore Blight.

To the Editor of Garden and Forest:

Sir,—I never chanced to observe the Sycamore blight on an Oriental Plane-tree, and we have always had the impression that it was free from the disease, or, at least, so rarely attacked that we have never hesitated to recommend its use. The disease is so virulent this year that I should be glad to have reports from your readers who observe Oriental Plane-trees. I have noticed that on our native Sycamores the young trees are not generally affected, and I am curious to know the reason of their immunity. The blight is very common in the New England states, and, as far as my observation goes, it becomes less frequent as one goes south. In former years I have looked in vain in North Carolina for a tree which shows the characteristic bunchy growth of twigs caused by the disease. If the fungus is not limited by climatic conditions our Sycamore is a doomed tree for landscape purposes in all parts of our country.

Brookline, Mass. *F. L. Olmsted, Jr.*

[Professor W. R. Lazenby writes in the current issue of *The Country Gentleman* from Nashville, where he has been attending the Exposition, that the blighting of the leaves of our native Sycamore is such a universal occurrence this year wherever he has traveled, that an uninfected Sycamore-tree is a rarity. Professor B. T. Galloway, chief of the Division of Vegetable Pathology in the Department of Agriculture, writes that Platanus orientalis is affected by the blight in Washington as well as the native species, although not as severely, and he adds that neither of the trees is as badly diseased in that city as they have been in former years. Dr. Halsted says that, while he has never observed this anthracnose upon the Oriental Sycamore, this tree is known to be a host of the fungus, and the blight was first described in Europe upon Platanus orientalis. The same Glæosporium also occurs on P. racemosa in California.—Ed.]

Notes on Hardy Plants.

To the Editor of Garden and Forest:

Sir,—The beautiful Campanula persicifolia has developed an interesting peculiarity which I have not seen recorded and which I have not noticed in any other herbaceous perennial. It is always my custom to cut away the flowering stems of herbaceous perennials when through blooming. In this instance, however, they were left on to obtain seed. The old flowers are now dried up and seed-pods have formed, yet between each of the former flowers new buds are forming and opening on the old stems all the way from bottom to top. It remains to be seen how many times this process will be repeated during the season.

Cimicifuga racemosa is a desirable subject for the garden in a moist spot where it will get the morning sun. The shape of the plant is very graceful, and the long, twisted panicles of fine white flowers at the top of the long branches are extremely decorative. The fragrance is almost oppressive and the bees swarm among the flowers.

Pentstemon barbatus Torreyi is seldom seen in gardens, but is remarkably handsome when well grown. This season has been especially favorable to its needs, and the stems have been from three to four feet long, covered from tip to about a foot from the ground with showy vermilion drooping flowers. It stands the winter well and increases in size.

Bergen Point, N. J. *L. C. L. Jordan.*

Flowery Byways.

To the Editor of Garden and Forest:

Sir,—Our native trees, shrubs and vines about St. Louis and in southern central Illinois have flowered with unusual profusion this year. First, the wood borders in all the ravines and bluffs on the Illinois side of the Mississippi blushed with the opening flowers of the Red-bud trees, and on the Missouri side the wild native growth on the tongue of lowland between the big rivers for miles above their confluence was rosy with the blossoms of the same trees. Following these were Dogwoods, Wild Plums, Cherries and Crab Apples, and later on every woodland way was powdered with the stars of Wild Blackberry blossoms, and the air was fragrant with the flowers of the Wild Grape from vines that were clambering over the trees. After these came in lavish abundance the blossoms of Cornus paniculata, with mounds of Wild Roses piled over the fences or over each other, and just now the course of every stream is outlined and every fence corner is decorated with the immense cymes of creamy Elder blossoms, the commonest and yet one of the most beautiful of our native shrubs, while along the railroad rights of way the posts of the barbed-wire fences stand like many-branched candelabra supporting the flaming flowers of the Trumpet Creeper.

Brighton, Ill. *Fanny Copley Seavey.*

The Cost of City Parks.

To the Editor of Garden and Forest:

Sir,—Your editorial, entitled "One Way to Reduce the Cost of Park Maintenance," suggests the thought that in many great industrial centres park accommodation is entirely inadequate. We have one great park on Manhattan Island and a number of smaller parks, but our congested population needs many more open spaces in which the free sunlight and the breath of nature can have full sway, and we must have them before this city assumes its proper place in the march of progress.

One great difficulty in the way of establishing parks in great centres of population is the opposition of landowners. Of course, in condemnation proceedings, the ousted owners naturally interpose objections, even if to be paid the full value of the condemned property; but such objections generally indicate a disposition to drive a hard bargain with the community, and need scarcely be regarded seriously.

With respect to other owners, if it can be shown that taxpayers not only do not suffer loss, but that the outlays necessary for park extension are borne in the majority of cases by the rent-paying public, little opposition might be expected to the extension on a large scale of a class of improvement that peculiarly reflects advancing modern civilization.

As a matter of fact, proven by the history of all such improvements, the cost of opening and maintaining parks, where sites have been judiciously selected, is in the nature of an investment from which large returns can be confidently expected. While the shortsighted policy of some property owners will always stand in the way, the opposition from this source can be reduced to a minimum by the educational influence of periodicals like Garden and Forest. A public-spirited press can do much to advance the public interests when threatened by the fatuous opposition of people blind to their own.

Much of the opposition has arisen from the unscientific methods of assessing the cost of parks, the usual plan being to charge one-half against the immediately abutting properties and the balance on other taxpayers through general taxation. This plan, which arbitrarily allocates a great part of the expense without taking into account all the property benefited,

necessarily works injustice, and those owners likely to suffer loss will make a more vigorous fight against improvement than its friends will in its favor. For instance, it can be readily seen that while residential properties adjoining a new park might increase in rent-yielding value to the full measure of their assessments, properties devoted to business could derive no advantage. On the contrary, because of the increased capital charge, business in the improved locality would have to be conducted on a less profitable basis or move away. Cases of hardship cannot be altogether avoided under any scheme of municipal improvement, but substantial justice can be done under a fair system of assessment. Park improvements will radiate value over a much greater area than the immediately adjoining properties. For example, Central Park undoubtedly diffuses a value throughout the whole of Manhattan Island, though, of course, in greater degree as the properties affected lie in its near vicinity.

Assuming, therefore, that park property is a paying investment, it remains to be seen what class of property ought to bear the cost. In this connection it may be pointed out that real estate reaps the whole benefit in a financial way, but, it may be observed, improvements on real estate do not reap a corresponding benefit, although these serve as a vehicle to convey the accruing increase in value to the owners in the tangible form of rent. Nothing of the kind can increase the value of improvements beyond the cost of duplication.

It would seem to follow, therefore, that the scientific method of charging the cost of parks is by a general tax on values of real estate, without respect to the improvements thereon. Such a method would obviate the greatest difficulties attending the opening of new parks, and, because distributed among all the taxpayers in the exact ratio of benefits received, would provide for their maintenance on a liberal scale without unnecessary friction.

New York. *Arthur Ogden Glees.*

Recent Publications.

Another part of the *Synoptical Flora of North America*, being vol. i., part i., fascicle ii., embracing the orders of Polypetalæ from Caryophyllaceæ to Polygalaceæ, has recently appeared, having been issued on June 10th last. The first part of this work, upon which Asa Gray labored assiduously for many years, appeared in 1878, being devoted to the Gamopetalæ after Compositæ. In 1884 Professor Gray produced another part, including Caprifoliaceæ to Compositæ inclusive, the elaboration of the last family being his most important contribution to descriptive botany. After his death the work was taken up by his successor, Mr. Sereno Watson, who died, however, without adding to it. In October, 1895, Dr. B. L. Robinson, curator of the Gray Herbarium, issued vol. i., part i., fascicle i., including the families beginning with the Ranunculaceæ and ending at Frankeniaceæ, and he now issues another part which is a substantial addition to this important work.

The great Pink family, occupying nearly fifty pages, has been elaborated by Dr. Robinson himself, who also contributes monographs on the Ficoideæ, and has also arranged and extended Dr. Gray's preliminary studies on Portulacaceæ, Elatinaceæ, Malvaceæ, Tilliaceæ, Zygophyllaceæ, Rutaceæ, Burseraceæ, Anacardiaceæ, Cyrillaceæ, Olacineæ. The account of the Sapindaceæ and Polygalaceæ is also from Dr. Robinson's pen, while Professor Trelease describes the Linaceæ, Geraniaceæ, Celastraceæ and Rhamnaceæ, Professor Bailey the Vitaceæ, and Professor Coulter the Hypericaceæ.

The form of the work is similar to that adopted by Professor Gray, and the nomenclature and arrangement of the families and genera are as they were when he died. This part contains, we believe, the last of Professor Gray's manuscript, so that the succeeding parts will be entirely the work of his successors. It is most desirable that they appear as rapidly as possible, for a complete Flora of North America is sadly needed everywhere by the students of botany.

We notice that especial attention is now given in this work to the correct citation of bibliographical references and figures, although the plates of different species of Hypericum which have appeared from time to time in the columns of this journal have been overlooked, while in other families, as far as we have observed, the figures of GARDEN AND FOREST have been cited. As must invariably happen where work of this sort is done by different authors, there is a certain unevenness of treatment, although Dr. Robinson's careful editing has largely remedied this inconvenience.

It is not our purpose here to criticise the system of nomenclature adopted in the *Flora of North America* or to discuss questions of the limitation of species, but simply to call attention to the appearance of this important contribution to the knowledge of American plants and to congratulate the editor and his associates upon the completion of a thoroughly conscientious, conservative and able piece of work, which we hope soon to see followed by the concluding parts of this work, the best and greatest monument of Asa Gray.

No. 2 of vol. v. of the *Contributions to the United States National Herbarium* is devoted to a most interesting account of the plants used by the Klamath Indians of Oregon, by Dr. Frederick V. Coville, the principal botanist of the Department of Agriculture. Nearly all the trees of the region were used by the Indians in one form or another. The bark of the White Fir, Abies concolor, to dye and tan their buckskin; the wood of Juniperus occidentalis for boys' bows; the wood of Libocedrus, which is rare in the region west of the Cascade summits, in former times for fire blocks and occasionally in basket-making, the branches and twigs of this tree being frequently employed in administering sweat baths to the sick. The seeds of the Sugar Pine were used for food, while from the Lodge Pole Pine, Pinus contorta, var. Murrayana, sections of the bark are cut for baskets for gathering berries, particularly huckleberries, which, placed in such receptacles and covered with leaves, retain their freshness for a long time. The pitch from this tree is used as a remedy for sore eyes, a small fragment being placed inside the lid. The young stems, stripped of their bark, are used to push dug-outs through shallow water. The cambium layer was scraped off and eaten in time of famine just as the bark of the Yellow Pine was used, a fact which was noticed long ago by Dr. Lyall, the naturalist of the Oregon Boundary Commission.

The chief timber used by the Klamaths is derived from the Yellow Pine, Pinus ponderosa, the common tree in all the region east of the Cascades. Their dug-outs are made from single logs of this tree hollowed out by fire, and its twigs were used as kindling-sticks in producing fire by friction. From the Yew, Taxus brevifolia, which is pretty widely distributed over all the mountain ranges of the north-west, was derived the favorite bow wood of all the Indian tribes of that part of the country. Hats were made from the bark of Populus tremuloides, and cloth from that of Populus balsamifera. The frames of the Indian snow-shoes are commonly made from Willow wood, and the young shoots of the different Willows which abound in the region are used as material for packing-baskets. The bark of the Alder, Alnus tenuifolia, boiled in water, formerly served as a dye.

It is curious to note that the Indians who were forced to eat the roots, fruit and seeds of almost every plant, made no use of the berries of Berberis repens, which certainly are less disagreeable to the taste than many of the things they seemed to relish. Philadelphus Lewisii, the common Syringa of the north-west, it appears, has obtained the name of arrow-wood because the Indians used the stems in the manufacture of large arrows for war purposes or the killing of big game.

This is one of the most important and interesting contributions to economic botany which has appeared for a long time, and it will be followed, we trust, by similar studies of the plants of other regions.

Notes.

A correspondent of an English paper speaks of the La Mance Iris as the best garden Iris among the North American species. The flowers are large and of a singularly rich color, the

light green styles being a noticeable feature which is considered to add to the beauty of the plant as well as to its distinctness.

A Wellesley, Massachusetts, correspondent writes with enthusiasm of a specimen of Brassia verrucosa in the collection of Mrs. Durant. It has twenty well-formed spikes.

The strawberry crop in Kent, England, this year has been quite phenomenal, according to the *Westminster Gazette*. In one day thirty tons were sent from Sandwich alone.

At the late National Rose Show in England the first prize for a dozen trusses of hybrid Tea Roses in not fewer than nine varieties was taken by Messrs. D. Prior & Son, who exhibited Marquise de Litta, Caroline Testout, Kaiserin A. Victoria, La France, Captain Christy, Mrs. W. J. Grant, White Lady, Lady Mary Fitzwilliam, La Fraicheur and Auguste Guinoisseau.

During the last six years the number of public parks in Glasgow have been more than doubled. And although it has been complained hitherto that the corporation has favored the well-to-do west end and neglected the industrial east end in regard to open spaces, it has now purchased for $150,000 one of the most picturesque spots in the neighborhood of Glasgow, just on the eastern boundary of the city.

The hybrid between Rosa multiflora and General Jacqueminot, which has been named the Dawson Rose, after its originator, is spoken of very highly by English connoisseurs, and, according to *The Garden*, it is one of the very earliest Roses to bloom there out-of-doors. This year it was in good flower on the 28th of May. It seems to have retained its free-flowering habit across the sea, where it has proved one of the most floriferous and showy of pillar Roses.

Among the curious wares for sale on the push-carts of the east side of this city are Cassia-pods, which come from northern Africa. These pods are the fruit of Cassia Fistula, the Pudding Pipe tree, a native of India. The pods are from one to two feet long, cylindrical, dark brown, with a woody covering and divided into compartments, each containing a flat seed surrounded by a dark pulp, which is the edible portion. This pulp is sweetish and is said to have laxative qualities.

The Kœlreuteria-tree has been known in European gardens for more than a century, and it is not rare in the parks and gardens of this country. Like many eastern Asia trees, it is occasionally disfigured by that mysterious "die-back" which shows itself in the death of single branches without any apparent cause. Owing, perhaps, to the abundance of moisture this year, the pinnate foliage has been unusually abundant, appearing in airy and almost Fern-like masses. Just now the trees about here are coming into flower, and the large terminal, spreading clusters of clear yellow flowers at this season, when no other trees are in bloom, make the Kœlreuteria a conspicuous object. These flowers are succeeded by bladdery fruits, which are also interesting.

Rosa setigera, the beautiful native climbing Rose, has just passed out of bloom, and although its merits are beginning to be appreciated, we never feel that we can say too much in its favor. In the very first volume of this journal we spoke of the freshness of its broad, clean, healthy leaves and of the conspicuous beauty of its great corymbs of large, deep rose-colored flowers. But there was little demand for single Roses, especially of the native kinds, and it is only within recent years that nurserymen have kept it for sale. It is perfectly hardy and will make strong shoots fifteen feet long in a year, which may be either trained to some support or left to arch over on the turf or trail down a bank. When a stem is cut the flowers keep opening in succession, so that they last a long time. In the autumn its stems turn to a dark purple and the leaves to a brilliant orange and scarlet. In the Arnold Arboretum and in the Boston parks generally, where the Prairie Rose has been largely planted, it has been better than ever this year, and many good judges are inclined to class it in the very foremost rank among useful shrubs.

President T. S. Gold, of the Connecticut Board of Agriculture, writes to *The American Agriculturist* that an experience with more than one hundred varieties of grafted Apple-trees convinces him that the stock has no influence on the taste of the fruit. That is, if a very sweet apple is grafted on an exceedingly sour stock the sweetness of the resulting fruit is not reduced. The acidity and other qualities of apples are largely affected, however, by the health of the tree and its location, some varieties varying much more than others. For example, the Northern Spy and the Yellow Bellflower vary from the best to the most worthless fruit. On one tree apples may be tender, juicy and of a pleasant acid flavor, on another they are tough, corky and acid, without any suggestion of sweetness. When a tree has been long in grass, producing sour and worthless apples, a cartload of strawy manure spread about the trunk opens the turf, starts the growth of the tree and gives to the fruit the richest flavor. Spraying with Bordeaux mixture, which protects the foliage from disease, has the same good effect on the fruit.

In a long letter to *The Rural New-Yorker*, a correspondent from the Mississippi Valley gives some interesting stories of the manner of life in that region during the time of the great deluge. Some people, who had already made their gardens before the flood came, took the precaution, as the rising water became more threatening, to nail a plank around the sides of the back galleries of their houses and covered the floor with several inches of earth. The vegetables were then lifted from the garden and planted in this soil, and in this way most of the growing plants were saved until the water soaked into the ground and the plants could be set back in their places. These persons were able to show thrifty vegetables a few days after the water had disappeared when their neighbors were getting ready to sow their seed again. It was the orchards, however, which suffered most. Several weeks of standing water will kill most trees, and the Peach-trees were the first to wilt and die. About the only fruit-trees which seem able to endure three or four weeks with their roots in water are the hardy varieties of the Plum, and for this reason it is recommended that hereafter Peaches in districts liable to be flooded shall be grafted on Plum stock.

Although the season for berries is waning, all the kinds are still represented in our markets, as strawberries, red, white and black raspberries, wild blackberries from Delaware and Maryland, and Wilson, Kittatinny and other popular cultivated kinds, huckleberries from the Shawangunk and Pocono mountains and other near-by sections, large luscious red currants, immense English gooseberries, ripe, and intended to be eaten out of hand. Besides the supplies from Delaware, Maryland, New Jersey and Pennsylvania, trains of refrigerator cars arrive here daily from the berry-growing section of New York state, about Oswego, Rome, etc. From the *Fruit Trade Journal* it is learned that these trains consist of sixteen to twenty-two cars, and each contains about two hundred crates. The cars are on the way only from ten to fifteen hours, so that the berries come through in first-class condition. All these state berries are received at the freight depot which stands upon the site of the old St. John's Park, and every morning during the season that locality is crowded with wagons and trucks which convey the consigned fruit to small dealers, commission houses, hotels and steamboat companies. The height of the season for these fruits was reached on June 25th, 26th and 27th. For the week ending July 6th ninety-eight carloads of berries, or nearly 20,000 crates, came from the Oswego district alone. The berry crop in western New York has been unusually good this year, so that with favorable rates fixed by the railroad companies, the season has been a profitable one to the growers. Wild Goose plums and cherries, from near-by states, are fairly abundant, and Moore's Early grapes, from South Carolina, are seen. Le Conte pears come from the south, and besides new apples from Delaware, Maryland and Virginia, there are early varieties from the orchards of this state and New Jersey. Sound hand-picked apples sell for $3.50 a barrel. Altogether, 115 carloads of watermelons were received here last week by rail and steamer, from South Carolina and southward. The best grades are entrusted to rapid carriage by rail. The spicy Jenny Lind and Gem and the red-fleshed Christina melons come from the Carolinas and Virginia, but many shipments are of inferior quality, and choice muskmelons are scarce. The quality of Georgia peaches continues unsatisfactory, as much of this fruit is stung and has been bruised in falling, and the sound hand-picked fruit has too often been gathered green. Among the best kinds now coming from Georgia are Elbertas; from South Carolina, Mountain Rose, and from North Carolina, Tillotson. A few early peaches are already received from Maryland and Delaware, but these hardly suggest the mature fruit which will be seen a few weeks hence. But a short note cannot include more than mention of some of the fruits bought and sold in any large American city at this time of year, for, besides the near-at-hand products already named as reaching this city last week, there were some 80,000 bunches of bananas, 50,000 cocoanuts in one cargo alone, nearly 500 barrels of pineapples from Cuba and several thousand crates of the same fruit from Florida, nearly 75,000 boxes of Mediterranean lemons, besides sixty-three carloads of pears, plums, peaches, apples and apricots from California.